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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/722,506	11/28/2000	Koji Shigematsu	105192.01	6870

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EXAMINER

NGUYEN, HUNG

ART UNIT PAPER NUMBER

2851

DATE MAILED: 12/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/722,506

Applicant(s)

SHIGEMATSU, KOJI

Examiner

Hung Henry V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 54-66 and 104-111 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 54-66 and 104-111 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/28/00 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/234,969.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Prosecution Status*

1. This office action is Non final since the Examiner has changed the art and advanced new arguments.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

3. Claims 54-56 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Nishi (U.S.Pat. 6,396,568).

With respect to claims 54-55, Nishi (fig.1) discloses an exposure apparatus comprising all basic features of the instant claims including a projection optical system (PL) for projecting a image formed on a reticle onto a substrate; a plurality of lenses arranged in the optical axis of the projection optical system, an aperture stop (42) arranged among the plurality of lenses and the numerical aperture of the projection optical system is set to about 0.81 (see col.42, lines 62).

As to claim 55, it is the Examiner's position that "a plurality of lenses including an aspherical lens surface" is an inherent teaching of a projection optical element in an exposure apparatus.

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With regard to claim 56, Nishi further teaches the exposure field dimension being of at least 25mm (see col.6, lines 35-40).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 63-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi et al (U.S.Pat. 6,396,568) in view of Nakajima (U.S.Pat. 5,493,446).

With regard to claims 63-66, Nishi discloses a projection optical system comprising substantially all basic features of the intent claims as discussed except for the aspherical lens surface with the refractive power at a paraxial region being weaker/ or being stronger than the refractive power at a peripheral region. However, selecting an aspherical lens which has a weak/ or strong refractive power in the paraxial area for the purpose of suppressing the aberrations of the entire lens system is well known per se. For instance, Nakajima teaches a projection lens system having an aspherical lens with refractive power at the paraxial area being weaker than the refractive power at the peripheral area for compensation of the imaging performance due to the temperature change (see col.6, lines 64 to col.7 line 26). This provides a concrete suggestion that it would have been obvious to one having ordinary skill in the art at the time the invention was made to select an aspherical lens surface with refractive power at the periphery being weaker or stronger than the refractive power at the paraxial area as suggested by

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Nakajima for the projection optical system of Nishi for the purpose of correcting the aberrations of the projection optical system and improving the quality of the images to be printed.

6. Claims 57-62 and 104-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi (U.S.Pat. 6,396,568) in view of Mercado (U.S.Pat. 5,990,926).

As to claims 57-62 and 104-111, Nishi discloses an exposure apparatus comprising substantially all of the limitations of the instant claims. Nishi does not expressly disclose the projection optical system having a negative group of lenses arranged between a first positive group of lenses, and a second positive group of lenses. It is the Examiner's position that selecting and arranging lens groups in a projection optical system is within level of one having ordinary skill in the art. For example, Mercado teaches a group of lens elements having negative refractive power being arranged between two groups of lens elements having positive refractive power (see fig.1). It would have been obvious to a skilled artisan to combine the teachings of Nishi and Mercado to obtain the invention as specified in claims 57-62 and 104-111. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a negative group of lenses arranged in the optical path between a first positive group of lenses and a second positive group of lenses in the projection optical system of Nishi as suggested by Mercado for the purpose of reducing the aberrations and increasing the resolution of the imaging system.

#### ***Response to Amendment***

7. Applicant's amendment filed October 24, 2002 has been entered. Claims 16-18, 31-32, 38-53 and 67-103 have been cancelled. New claims 104-111 have been added. With respect to

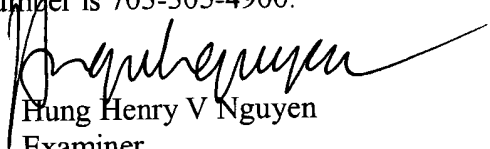
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the prior art rejection, applicant's arguments have been considered but have been traversed as set forth above in view of newly discovered prior art.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V Nguyen whose telephone number is 703-305-6462. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7723 for regular communications and 703-305-7723 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.



Hung Henry V Nguyen  
Examiner  
Art Unit 2851

hvn  
December 23, 2002